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10/585,152

12/15/2006

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EXAMINER

PECHE, JORGE O

ART UNIT

PAPER NUMBER

3664

NOTIFICATION DATE

DELIVERY MODE

07/13/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@fbtlaw.com

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/585,152 | <b>Applicant(s)</b><br>LINDSKOG ET AL. |  |
|                              | <b>Examiner</b><br>JORGE PECHE       | <b>Art Unit</b><br>3664                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 18-29 and 35 is/are rejected.
- 7) ☒ Claim(s) 5-12, 13-17, and 30-34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

Receipt is acknowledged of Applicant's argument/remarks filed on April 19, 2011, claims 1-35 are pending and an action on the merits is as follows.

Applicant's arguments with respect to claims 1-35 have been fully considered but are moot in view of a new ground(s) of rejection. Applicant has amended claims 23 and 28. The objection of claim 23-24 and the rejection of claim 28 under U.S.C. 112, second paragraph, had been withdrawn.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 18-29 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuno et al. (Patent No.: 5,719,565) and in view of Gustavsson et al. (WO 2004/042553 A1).

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Regarding claims 1-3, 18-20, 27-28 and 35, Tsuno et al. disclose an anti-skid controller (*computer program*) having accurate road surface detection capabilities, the method and system comprising:

- a wheel speed sensor (*wheel speed sensor (5-8)*) for sensing a wheel speed signal which is indicative of the wheel speed of a vehicle's wheel driving over the ground (see col. 4, lines 66-67; col. 5, lines 30-32; Figure 3); and
- a first analyzer unit (*electronic control unit (ECU) (40)*) coupled to said wheel speed sensor (*wheel speed sensor (5-8)*) which comprises (see col. 51-62; Figure 3):

However, Tsuno et al.' reference is silent regarding (1) a sensor imperfection estimation section which is designed to estimate a sensor imperfection signal from the wheel speed signal which is indicative of the sensor imperfection of the wheel speed sensor and (2) a signal correction section which is designed to determine an imperfection-corrected sensor signal from the wheel speed signal and the sensor imperfection signal.

However, Gustavsson et al. teach a method system and computer program for digital signal processing for a rotational speed sensors comprising (1) a sensor imperfection estimation section (*least mean square fit procedure determining (56)*) which is designed to estimate a sensor imperfection signal (*sensor error*) from the wheel speed signal (*rotational speed sensor (50)*) which is indicative of the sensor

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imperfection of the wheel speed sensor and (2) a signal correction section ( *subtraction (58 / determine (60) )* ) which is designed to determine an imperfection-corrected sensor signal from the wheel speed signal (tk) and the sensor imperfection signal (*sensor error*) (see page 15, line 24 – page 18, line 24 ; Figures 1-10).

Given the teaching of Gustavsson et al., it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tsuno et al.' reference to incorporate, within the road surface identifier (A6) (Tsuno et al. invention), a least mean square fit procedure determining, a subtraction, and a determine sections to calculate a hypothetical angular velocity of the speed sensor and/or variance of the filtered wheel acceleration.

Doing so would enhance an anti-skid controller having accurate road surface detection capable to determine a road condition based wheel speed sensor.

Furthermore, Tsuno et al. disclose a ground condition estimation section (road determination unit (A6c)) which is designed to estimate a first estimation value (combining / averaging the first estimation value by using function) indicative of the ground condition from the imperfection corrected sensor signal (*a result determination for a road: good road or bad road / (subtraction (58 / determine (60) , Gustavsson et al.'s reference) )* (see col. 5, lines 10-20; col. 5, lines 56-63; col. 6, line 49 – col. 7, line 18; Figures 1-4, 8).

Regarding claims 4 and 21, Tsuno et al. disclose a method and a system for an anti-skid controller having accurate road surface detection capabilities comprising a filter processor (A6a)) (*e.g. low pass filter*) (see col. 5, lines 4-19; Figures 3). However, Tsuno et al. is silent as to the specifics of applying mathematical formula within the filter unit.

Nevertheless, applying any mathematical formulae, including that of the claimed invention, would have been an obvious design choice for one of ordinary skill in the art because it facilitates known mathematical means for determining a characteristic signal (*e.g. a sensor imperfection signal*). Since the invention fails to provide novel or unexpected result from the usage of said claimed formulae, use of many mathematical means, including that of the claimed invention, would be an obvious matter of design choice within the skill of the art.

Regarding claim 22-24, Tsuno et al. disclose an anti-skid controller having accurate road surface detection capabilities, the method and system comprising the step of determining a variance (*variance DVWB*) of the imperfection-corrected sensor signal (*signal from variance calculation unit (a6b)*), and estimating the first estimation value (*output signal form the road determination unit (a6c)*) on the basis of the variance thus determined (see col. 5, lines 10-20; col. 5, lines 56-63; col. 6, line 49 – col. 7, line 18; Figures 1-4, 8).

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Regarding claims 25-26 and 29, Tsuno et al. disclose a method and a system for an anti-skid controller having accurate road surface detection capabilities comprising the step of determining a variance DVWB of a wheel (see col. 6, lines 24-26). However, Tsuno et al. is silent as to the specifics of applying mathematical formula for determining wheel signal change value.

Nevertheless, applying any mathematical formulae, including that of the claimed invention, would have been an obvious design choice for one of ordinary skill in the art because it facilitates known mathematical means for determining a variation of signal value with respect to a set of predetermined thresholds. Since the invention fails to provide novel or unexpected result from the usage of said claimed formulae, use of many mathematical means, including that of the claimed invention, would be an obvious matter of design choice within the skill of the art.

### ***Allowable Subject Matter***

Claims 5-12, 13-17, and 30-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JORGE O. PECHE whose telephone number is (571)270-1339. The examiner can normally be reached on 8:30 am - 5:30 pm Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi H. Tran can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jorge O Peche/  
Examiner, Art Unit 3664

/Dalena Tran/  
Primary Examiner, Art Unit 3664